
Claims

What is claimed is:

1. An electric *vibrating razor* comprising:

a piezoelectric, electrostrictive, or ferroelectric film substrate;

a battery for powering said piezoelectric, electrostrictive, or ferroelectric film substrate;

a handle which encases an electronic control module and said battery wherein said handle has a longitudinal axis;

a solid shaver head pivotally and electrically attached to said handle wherein said shaver head has a piezoelectric, electrostrictive, or ferroelectric film substrate applied to each cutting blade;

a means for coupling said shaver head to said electronic control module.

2. An electric *vibrating razor* according to claim 1 wherein said coupling means is an electrical union.

3. An electric *vibrating razor* according to claim 2 wherein said electrical union is a female coupling disposed at the distal end of said handle.

4. An electric *vibrating razor* according to claim 2 wherein said electrical union is a male coupling protruding from said shaver head.

5. An electric *vibrating razor* according to claim 2 wherein said electrical union is contained within the pivotal head and said handle at their connection point.

6. An electric *vibrating razor* according to claim 2 wherein said electrical union is housed in plastic.

7. An electric *vibrating razor* according to claim 3 wherein said female coupling is housed in plastic and contains two cylindrical metal sleeves about 0.125 inches in length.

8. An electric *vibrating razor* according to claim 4 wherein said male coupling is housed in plastic and has two protruding metal prongs of longitudinal axis about 0.125 inches in length.

9. An electric *vibrating razor* according to claim 1 further comprising a seal disposed between said shaver head and said handle.
10. An electric *vibrating razor* according to claim 2 wherein said electrical union supplies power to said shaver head.
11. An electric *vibrating razor* according to claim 2 wherein said electrical union is integrated into the mechanical coupling of the shaver head and said handle mentioned in claim 1.
12. An electric *vibrating razor* according to claim 1 wherein said battery is rechargeable.
13. An electric *vibrating razor* according to claim 1 wherein said battery is replaceable.
14. An electric *vibrating razor* according to claim 1 wherein said electronic control module is power by battery.
15. An electric *vibrating razor* according to claim 14 wherein said electronic control module generates a signal variable in frequency and amplitude to said shaver head cutting blades.
16. An electric *vibrating razor* according to claim 14 wherein said electronic control module is housed within the said handle.
17. An electric *vibrating razor* according to claim 14 wherein said electronic control module transmits power to said cutting blades electrically via said electrical union mentioned in claim 2.
18. An electric *vibrating razor* according to claim 14 wherein said electronic control module is comprised of solid state circuitry.
19. An electric *vibrating razor* according to claim 14 wherein said electronic control module is sealed within said handle.
20. An electric *vibrating razor* according to claim 14 wherein said electronic control module is comprised of circuitry used to generate signals of varying frequency and amplitude.
21. An electric *vibrating razor* according to claim 1 wherein said shaver head cutting blades are coated with a piezoelectric, electrostrictive, or ferroelectric film substrate.
22. An electric *vibrating razor* according to claim 21 wherein said cutting blades are electrically connected to the said electrical union mentioned in claim 2.

23. An electric *vibrating razor* according to claim 21 wherein said cutting blades are vibrated electrically by said piezoelectric, electrostrictive, or ferroelectric film substrate mentioned in claim 1.

24. An electric *vibrating razor* according to claim 21 wherein said cutting blades are housed within said shaver head.

25. An electric *vibrating razor* according to claim 21 wherein said cutting blades are made of metal and coated with said piezoelectric, electrostrictive, or ferroelectric film substrate mentioned in claim 1.

26. An electric *vibrating razor* according to claim 21 wherein said cutting blades will vibrate at a selectable frequency and amplitude.

27. An electric *vibrating razor* according to claim 21 wherein said cutting blades are electrically connected to said handle.

28. An electric *vibrating razor* according to claim 21 wherein said cutting blades are electrically connected to said male coupling mentioned in claim 4.

29. A *vibrating razor* comprising:

a power source;

a shaver head cutting blades with piezoelectric, electrostrictive, or ferroelectric film substrate attached thereto;

an electronic control module;

means for housing said power source and said electronic control module;

means for electrically coupling a shaver head and handle;

means for mechanically coupling a shaver head and handle with an electrical connection within;

means for electrically coupling said handle and shaver head cutting blades which allows each cutting blade to vibrate at a selectable frequency and amplitude.

30. A *vibrating razor* according to claim 29 wherein said coupling means comprises an electrical connection.

31. A *vibrating razor* according to claim 29 wherein said electrical coupling means imparts vibrations to said shaving head cutting blades.

32. A *vibrating razor* according to claim 29 wherein said electrical coupling provides the

driving force for each cutting blade.

33. A *vibrating razor* according to claim 29 wherein said electrical connection is completely housed within a rigid mechanical connection .

34. A *vibrating razor* according to claim 29 wherein said electrical coupling is achieved by mating two metals.

35. An electric *vibrating razor* according to claim 29 wherein said electronic control module is powered by any source.

36. An electric *vibrating razor* according to claim 29 wherein said electronic control module generates a signal variable in frequency and amplitude to said shaver head cutting blades and this setting is savable.

37. An electric *vibrating razor* according to claim 29 wherein said electronic control module is mounted to the said handle.

38. An electric *vibrating razor* according to claim 29 wherein said electronic control module transmits power to said cutting blades electrically via a conducting median.

39. An electric *vibrating razor* according to claim 29 wherein said electronic control module integrated into the handle using semiconductor layering technology.

40. An electric *vibrating razor* according to claim 29 wherein said shaver head cutting blades are powered and controlled on the shaver head itself.

Abstract

A razor head which uses an 'active' material to vibrate each cutting blade. This active material is comprised of either a piezoelectric, electrostrictive, ceramic or ferroelectric film type substrate. Each blade will vibrate at a selectable amplitude and frequency. The shaver head is electrically coupled to a housing containing a power source and an electric control module. Alternatively, the battery and the control module can be placed on the razor head itself. In addition, the electronic control module can be on the handle and the active components and battery can be on the razor head. Each of these configurations require no moving parts.
